APPENDIX B

ENVIRONMENTAL SURVEILLANCE PROGRAM RESULTS

The environmental surveillance program focuses on environmental conditions in the area surrounding the site and in local communities. Tables summarizing monitoring results from 2000 are presented in this Appendix. In a number of the tables, results are presented as "incremental concentrations." The designation indicates that an average background concentration, or "environmental" concentration, has been subtracted from those values. Therefore, incremental concentrations represent estimates of MEMP's contribution to the radionuclide content of an environmental sample. Environmental concentrations are shown in Table B-1. Environmental sampling results are organized into tables showing:

- number of samples analyzed during the year,
- minimum concentration measured,
- maximum concentration measured,
- average value with error limits, and, when appropriate,
- a comparison to a DOE or EPA standard.

Table B-1. Environmental Concentrations of Radionuclides in Sample Media in 2000

Radionuclide	Number of Samples	Average Concentration[a]	Unit of Measure
Ambient air[b]			
Tritium oxide	47	5.71 ± 2.52	10^{-12} µCi/mL
Plutonium-238	4	0.09 ± 0.18	10^{-18} µCi/mL
Plutonium-239,240	4	0.76 ± 0.89	10^{-18} µCi/mL
Thorium-238	4	5.18 ± 3.1	10^{-18} µCi/mL
Thorium-230	4	5.42 ± 2.57	10^{-18} µCi/mL
Thorium-232	4	4.06 ± 1.95	10^{-18} µCi/mL
River water[c]			
Tritium	10	ND	10^{-6} µCi/mL
Plutonium-238	12	ND	10^{-12} µCi/mL
Plutonium-239,240	12	0.19 ± 3.02	10^{-12} µCi/mL
Uranium-233,234	12	0.89 ± 0.09	10^{-9} µCi/mL
Uranium-238	12	0.79 ± 0.09	10^{-9} µCi/mL
Thorium-228	4	19.15 ± 12.33	10^{-12} µCi/mL
Thorium-230	4	45.6 ± 68.73	10^{-12} µCi/mL
Thorium-232	4	14.48 ± 24.26	10^{-12} µCi/mL
Pond water[d]			
Tritium	1	ND	10^{-6} µCi/mL
Plutonium-238	1	0.004 ± 0.003	10^{-9} µCi/mL
Plutonium-239,240	1	0.01 ± 0.003	10^{-9} µCi/mL
Sediment			
Plutonium-238 in river sediment[c]	4	12.42 ± 36.51	10^{-9} µCi/g
Plutonium-238 in pond sediment[d]	1	2.6 ± 0.53	10^{-9} µCi/g
Plutonium-239,240 in river sediment[c]	4	0.91 ± 0.76	10^{-9} µCi/g
Plutonium-239,240 in pond sediment[d]	1	2.2 ± 0.47	10^{-9} µCi/g
Thorium-228 in river sediment[c]	4	514.0 ± 379.99	10^{-9} µCi/g
Thorium-230 in river sediment[c]	4	995.75 ± 626.45	10^{-9} µCi/g
Thorium-232 in river sediment[c]	4	479.25 ± 393.19	10^{-9} µCi/g
Thorium-228 in pond sediment	1	234.0 ± 35.33	10^{-9} µCi/g
Thorium-230 in pond sediment	1	531.0 ± 57.33	10^{-9} µCi/g
Thorium-232 in pond sediment	1	260.0 ± 37.33	10^{-9} µCi/g
Foodstuffs[e]			
Tritium in vegetation	1	0.09 ± 0.02	10^{-6} µCi/g
Plutonium-238 in vegetation	2	ND	10^{-9} µCi/g
Plutonium-239,240 in vegetation	2	ND	10^{-9} µCi/g

[a] Error limits are estimates of the standard error or estimated error at the 95% confidence level.
[b] Measured 28 mi (45 km) northwest of MEMP.
[c] Measured 25 mi (40 km) upstream of MEMP on the Great Miami River.
[d] Measured 25 mi (40 km) northwest of MEMP.
[e] Measured 30 mi (48 km) north of MEMP.
ND indicates that concentration was not detectable above the average reagent blanks..

Table B-2. Incremental Concentrations[a] of Tritium Oxide in Air in 2000

Location*	Number of Samples	Tritium Oxide 10^{-12} µCi/mL			Average as a percent of DOE DCG[d]
		Minimum	Maximum	Average[b,c]	
Offsite					
101	49	e	13.02	e	e
102	49	e	23.84	2.34 ± 3.3	0.002
103	51	e	41.49	1.26 ± 3.56	0.001
104	51	e	28.63	0.02 ± 3.41	0.00002
105	51	e	24.85	e	e
111	49	e	14.07	e	e
112	51	e	10.53	e	e
115	51	e	7.51	e	e
118	51	e	13.68	e	e
124	51	e	26.57	3.41 ± 3.51	0.003
CLN	51	e	24.68	e	e
Onsite					
211	48	e	43.02	2.95 ± 3.81	0.003
212	41	e	20.26	4.42 ± 3.32	0.004
213	49	e	27.22	3.51 ± 3.37	0.004
214	48	e	28.67	2.0 ± 3.44	0.002
215	50	e	19.97	2.49 ± 3.27	0.003
216	49	e	40.15	2.06 ± 3.52	0.002
217	50	e	23.53	0.96 ± 3.2	0.001
218	51	e	33.26	0.93 ± 3.7	0.0009

[a] Average environmental level shown in Table B-1 subtracted from the data.

[b] Error limits are estimates of the standard error of the estimated mean at the 95% confidence level.

[c] LDL for tritium offsite in air is 28 x 10^{-12} µCi/mL. The LDL for tritium in onsite air is 23 x 10^{-12} µCi/mL. The LDL for sample 211 is 26 x 10^{-12} µCi/mL. These differences are due to different calculation methods and propagation of standard deviations due to the number of bubblers in series.

[d] DOE DCG for tritium oxide in air is 100,000 x 10^{-12} µCi/mL.

[e] Below environmental level.

* Onsite sampling locations shown on Figure 4-4. Offsite sampling locations shown on Figure 4-5.

Table B-3. Incremental Concentrations[a] of Plutonium-238 in Air in 2000

Location*	Number of Samples	Plutonium-238 10^{-18} µCi/mL Minimum	Maximum	Average[b,c]	Average as a percent of DOE DCG[d]
Offsite					
101	4	e	4.70	2.23 ± 4.03	0.007
102	4	0.31	1.13	0.73 ± 0.72	0.002
103	4	0.41	0.94	0.62 ± 0.40	0.002
104	12	e	1.62	0.31 ± 0.34	0.001
105	4	e	0.25	0.07 ± 0.27	0.0002
111	4	e	0.68	0.15 ± 0.60	0.0005
112	4	e	0.07	e	e
115	4	e	0.05	e	e
118	4	0.04	0.53	0.26 ± 0.37	0.0009
124	12	0.72	2.9	1.55 ± 0.46	0.005
CLN	12	e	1.55	0.56 ± 0.38	0.002
Onsite					
211	12	0.47	108.03	11.09 ± 19.42	0.04
212	11	0.43	4.22	1.42 ± 0.74	0.005
213	12	3.98	15.54	7.99 ± 2.34	0.03
214	12	0.14	7.18	1.74 ± 1.19	0.006
215	11	0.27	8.87	3.00 ± 1.86	0.01
215T	12	0.17	16.51	4.08 ± 3.51	0.01
216	12	1.03	11.61	4.11 ± 1.85	0.01
217	12	e	1.02	0.33 ± 0.29	0.001
218	12	0.24	42.22	5.81 ± 7.34	0.02

[a] Average environmental level shown in Table B-1 subtracted from the data.

[b] Error limits are estimates of the standard error of the estimated mean at the 95% confidence level.

[c] LDL for monthly values is 0.5 x 10^{-18} µCi/mL, for quarterly values the LDL is 0.2 x 10^{-18} µCi/mL.

[d] DOE DCG for plutonium-238 in air is 30,000 x 10^{-18} µCi/mL.

[e] Below environmental level.

T = Supplemental sampling height (2m).

* Offsite sampling locations shown on Figure 4-4. Onsite sampling locations shown on Figure 4-5.

Table B-4. Incremental Concentrations[a] of Plutonium-239,240 in Air in 2000

Location*	Number of Samples	Plutonium-239,240 10^{-18} µCi/mL			Average as a percent of DOE DCG[d]
		Minimum	Maximum	Average[b,c]	
Offsite					
101	4	e	0.06	e	e
102	4	e	e	e	e
103	4	e	e	e	e
104	12	e	1.35	e	e
105	4	e	0.61	e	e
111	4	e	0.35	e	e
112	4	e	0.34	e	e
115	4	e	e	e	e
118	4	e	e	e	e
124	12	e	0.45	e	e
CLN	12	e	0.34	e	e
Onsite					
211	12	e	0.66	e	e
212	11	e	3.05	0.17 ± 1.13	0.0009
213	12	e	0.38	e	e
214	12	e	0.27	e	e
215	11	e	e	e	e
215T	12	e	0.87	e	e
216	12	e	0.75	e	e
217	12	e	1.32	e	e
218	12	e	0.96	e	e

[a] Average environmental level shown in Table B-1 subtracted from the data.

[b] Error limits are estimates of the standard error of the estimated mean at the 95% confidence level.

[c] LDL for monthly values is 0.4 x 10^{-18} µCi/mL, for quarterly values the LDL is 0.1 x 10^{-18} µCi/mL.

[d] DOE DCG for plutonium-239,240 in air is 20,000 x 10^{-18} µCi/mL.

[e] Below environmental level.

T = Supplemental sampling height (2m).

* Onsite sampling locations shown on Figure 4-4. Offsite sampling locations shown on Figure 4-5.

Table B-5. Incremental Concentrations[a] of Thorium-228, Thorium-230, and Thorium-232 in Air in 2000

Location*	Number of Samples	Thorium-228 10^{-18} µCi/mL Minimum	Maximum	Average[b,c]	Average as a percent of DOE DCG[f]
Offsite					
124	12	g	11.96	2.62 ± 3.72	0.007
Onsite					
213	12	g	22.54	7.43 ± 5.38	0.02
215T	12	0.03	9.58	2.84 ± 3.54	0.007
216	12	g	8.82	4.57 ± 3.61	0.01
218	12	g	5.77	2.27 ± 3.33	0.006

Location*	Number of Samples	Thorium-230 10^{-18} µCi/mL Minimum	Maximum	Average[b,d]	Average as a percent of DOE DCG[f]
Offsite					
124	12	g	10.33	2.74 ± 3.45	0.007
Onsite					
213	12	g	24.83	9.02 ± 6.11	0.02
215T	12	g	12.02	2.72 ± 3.68	0.007
216	12	g	13.59	5.51 ± 3.65	0.01
218	12	g	3.89	1.21 ± 2.67	0.003

Location*	Number of Samples	Thorium-232 10^{-18} µCi/mL Minimum	Maximum	Average[b,e]	Average as a percent of DOE DCG[f]
Offsite					
124	12	g	7.97	1.96 ± 2.48	0.03
Onsite					
213	12	g	22.11	6.60 ± 4.73	0.09
215T	12	g	7.62	1.72 ± 2.54	0.02
216	12	g	11.04	4.10 ± 3.01	0.06
218	12	g	4.05	1.04 ± 2.22	0.01

[a] Average environmental level shown in Table B-1 subtracted from the data.

[b] Error limits are estimates of the standard error of the estimated mean at the 95% confidence level.

[c] LDL for Th-228 for monthly values is 1.0 x 10^{-18} µCi/mL, for quarterly values the LDL is 0.3 x 10^{-18} µCi/mL.

[d] LDL for Th-230 for monthly values is 1.3 x 10^{-18} µCi/mL, for quarterly values the LDL is 0.08 x 10^{-18} µCi/mL.

[e] LDL for Th-232 for monthly values is 0.5 x 10^{-18} µCi/mL, for quarterly values the LDL is 0.1 x 10^{-18} µCi/mL.

[f] DOE DCG for thorium-228 and thorium-230 in air is 40,000 x 10^{-18} µCi/mL. The DOE DGC for thorium-232 in air is 7,000 x 10^{-18} µCi/mL.

[g] Below environmental level.

T = Supplemental sampling height (2m).

* Offsite sampling locations shown on Figure 4-4. Onsite sampling locations shown on Figure 4-5.

Table B-6. Concentrations[a] of Tritium in the Great Miami River and Stream in 2000

Location*	Number of Samples	Tritium 10^{-6} µCi/mL			Average as a Percent of DOE DCG[d]
		Minimum	Maximum	Average[b,c]	
2	10	e	0.04	e	e
4	10	e	0.17	e	e
5	10	e	0.42	e	e
7	10	e	4.89	1.17 ± 1.15	0.06
8	10	e	0.22	e	e
Mound Ave Storm	12	e	0.41	0.13 ± 0.12	0.01

[a] Average environmental level below reagent blanks.
[b] Error limits are estimates of the standard error of the estimated mean at the 95 % confidence level.
[c] LDL for tritium in water is 0.55 x 10^{-6} µCi/mL.
[d] DOE DCG for tritium in water is 2,000 x 10^{-6} µCi/mL.
[e] Below reagent blanks.
* Sampling locations shown on Figure 4-7.

Table B-7. Concentrations[a] of Plutonium-238 in the Great Miami River in 2000

Location*	Number of Samples	Plutonium-238 10^{-12} µCi/mL			Average as a percent of DOE DCG[d]
		Minimum	Maximum	Average[b,c]	
2	12	e	23.7	3.12 ± 4.37	0.01
4	12	e	23.8	4.13 ± 5.63	0.01
5	12	e	9.7	e	e
7	12	e	16496.8	1602.7 ± 2996.48	4.01
8	12	e	82.0	13.37 ± 18.75	0.04

[a] Average environmental level below reagent blanks.
[b] Error limits are estimates of the standard error of the estimated mean at the 95 % confidence level.
[c] LDL for plutonium-238 in river water (including suspended sediment) is 28.0 x 10^{-12} µCi/mL.
[d] DOE DCG for plutonium-238 in water is 40,000 x 10^{-12} µCi/mL.
[e] Below reagent blanks.
* Sampling locations shown on Figure 4-7.

Table B-8. Incremental Concentrations[a] of Plutonium-239,240 in the Great Miami River in 2000

Location*	Number of Samples	Plutonium-239,240 10^{-12} µCi/mL			Average as a percent of DOE DCG[d]
		Minimum	Maximum	Average[b,c]	
2	12	e	4.11	e	e
4	12	e	4.21	e	e
5	12	e	2.21	e	e
7	12	e	535.21	49.51 ± 97.8	0.17
8	12	e	17.81	e	e

[a] Average environmental level shown in Table B-1 subtracted from the data.

[b] Error limits are estimates of the standard error of the estimated mean at the 95 % confidence level.

[c] LDL for plutonium-239,240 in river water (including suspended sediment) is 17.3 x 10^{-12} µCi/mL.

[d] DOE DCG for plutonium-239,240 in water is 30,000 x 10^{-12} µCi/mL.

[e] Below environmental level.

* Sampling locations shown on Figure 4-7.

Table B-9. Incremental Concentrations[a] of Uranium-233,234 and Uranium-238 in the Great Miami River in 2000

Location*	Number of Samples	Uranium-233,234 10^{-9} µCi/mL			Average as a percent of DOE DCG[d]
		Minimum	Maximum	Average[b,c]	
2	12	e	0.2	e	e
4	12	e	0.46	e	e
5	12	e	0.005	e	e
7	12	e	0.09	e	e
8	12	e	0.03	e	e

Location*	Number of Samples	Uranium-238 10^{-9} µCi/mL			Average as a percent of DOE DCG[d]
		Minimum	Maximum	Average[b,c]	
2	12	e	0.29	e	e
4	12	e	0.23	e	e
5	12	e	0.004	e	e
7	12	e	0.8	e	e
8	12	e	0.04	e	e

[a] Average environmental level shown in Table B-1 subtracted from the data.

[b] Error limits are estimates of the standard error of the estimated mean at the 95 % confidence level.

[c] LDL for uranium-233,234 and uranium-238 is 0.02×10^{-9} µCi/mL.

[d] DOE DCG for uranium-233,234 in water is 500×10^{-9} µCi/mL. The DOE DCG for uranium-238 in water is 600×10^{-9} µCi/mL.

[e] Below environmental level.

* Sampling locations shown on Figure 4-7.

Table B-10. Incremental Concentrations[a] of Thorium-228, Thorium-230, and Thorium-232 in the Great Miami River in 2000

Location*	Number of Samples	Thorium-228 Value[a, b, c] 10^{-12} µCi/mL			Average as a percent of DOE DCG[d]
		Minimum	Maximum	Average	
2	4	e	6.85	e	e
4	4	e	1.05	e	e
5	4	e	87.05	21.0 ± 77.56	0.005
7	4	e	85.85	20.8 ± 73.34	0.005
8	4	e	37.85	10.75 ± 38.07	0.003

Location*	Number of Samples	Thorium-230 Value[a,b,c] 10^{-12} µCi/mL			Average as a percent of DOE DCG[d]
		Minimum	Maximum	Average	
2	4	e	e	e	e
4	4	e	5.4	e	e
5	4	e	46.8	12.25 ± 90.24	0.004
7	4	e	e	e	e
8	4	e	48.4	1.75 ± 86.77	0.0006

Location*	Number of Samples	Thorium-232 Value[a,b,c] 10^{-12} µCi/mL			Average as a percent of DOE DCG[d]
		Minimum	Maximum	Average	
2	4	e	10.73	e	e
4	4	e	e	e	e
5	4	e	36.73	13.85 ± 39.15	0.03
7	4	e	64.53	6.58 ± 66.41	0.01
8	4	e	26.53	3.03 ± 35.92	0.006

[a] Average environmental level shown in Table B-1 subtracted from the data.

[b] Error limits are estimates of the standard error of the estimated mean at the 95% confidence level.

[c] LDL for thorium-228 in river water is 29.6 x 10^{-12} µCi/mL. The LDL for thorium-230 in river water is 42.8 x 10^{-12} µCi/mL. The LDL for thorium-232 in river water is 21.7 x 10^{-12} µCi/mL.

[d] DOE DCG for thorium-228 in water is 400,000 x 10^{-12} µCi/mL. DOE DCG for thorium-230 in water is 300,000 x 10^{-12} µCi/mL. DOE DCG for thorium-232 in water is 50,000 x 10^{-12} µCi/mL.

[e] Below environmental level.

* Sampling locations shown on Figure 4-7.

Table B-11. Concentrations[a] of Tritium in Pond Water in 2000

Location*	Number of Samples	Tritium Value[b,c] 10^{-6} µCi/mL	Value as a percent of DOE DCG[d]
11	1	e	e
12	1	e	e
14	1	e	e
15	1	e	e
17	1	e	e
18	1	e	e

[a] Average environmental level below reagent blanks.

[b] Estimated error at the 95% confidence level.

[c] LDL for tritium in pond water is 0.55 x 10^{-6} µCi/mL.

[d] DOE DCG for tritium in water is 2,000 x 10^{-6} µCi/mL.

[e] Below reagent blanks

* Sampling locations shown on Figure 4-7.

Table B-12. Incremental Concentrations[a] of Plutonium-238 in Pond Water in 2000

Location*	Number of Samples	Plutonium-238 Value[b,c] 10^{-12} µCi/mL	Value as a percent of DOE DCG[d]
11	1	2.3 ± 4.2	0.006
12	1	e	e
14	1	e	e
15	1	e	e
17	1	17.0 ± 7.2	0.04
18	1	3.0 ± 4.4	0.008

[a] Average environmental level shown in Table B-1 subtracted from the data.

[b] Estimated error at the 95% confidence level.

[c] LDL for plutonium-238 in pond water is 28.0 x 10^{-12} µCi/mL.

[d] DOE DCG for plutonium-238 in water is 40,000 x 10^{-12} µCi/mL.

[e] Below environmental level.

* Sampling locations shown on Figure 4-7.

Table B-13. Concentrations[a] of Plutonium-239,240 in Pond Water in 2000

Location*	Number of Samples	Plutonium-239,240 Value[b,c] 10^{-12} µCi/mL	Value as a Percent of DOE DCG[d]
11	1	e	e
12	1	e	e
14	1	e	e
15	1	e	e
17	1	6.8 ± 7.1	0.02
18	1	e	e

[a] Average environmental level below reagent blanks.

[b] Estimated error at the 95% confidence level.

[c] LDL for plutonium-239,240 in pond water is 17.3 x 10^{-12} µCi/mL.

[d] DOE DCG for plutonium-239,240 in water is 30,000 x 10^{-12} µCi/mL.

[e] Below reagent blanks.

* Sampling locations shown on Figure 4-7.

Table B-14. Incremental Concentrations[a] of Plutonium-238 in River and Stream Sediments in 2000

Location*	Number of Samples	Plutonium-238 10^{-9} µCi/g Minimum	Maximum	Average[b,c]
2	4	d	45.79	14.56 ± 51.53
4	4	130.99	158.39	147.79 ± 41.88
5	4	d	53.79	12.56 ± 57.96
7	4	377.99	3112.69	1660.16 ± 1895.09
8	4	15.59	138.69	74.14 ± 92.30
Mound Ave Storm	4	74.29	255.59	126.61 ± 142.43

[a] Average environmental level shown in Table B-1 subtracted from the data.

[b] Error limits are estimates of the standard error of the estimated mean at the 95% confidence level.

[c] LDL for plutonium-238 in river sediment is 3.2 x 10^{-9} µCi/g.

[d] Below environmental level.

* Sampling locations shown on Figure 4-7.

Table B-15. Incremental Concentrations[a] of Plutonium-238 in Pond Sediments in 2000

Location*	Number of Samples	Plutonium-238 Value[b,c] 10^{-9} µCi/g
11	1	1.7 ± 0.71
12	1	d
14	1	d
15	1	1.6 ± 0.74
17	1	23.6 ± 1.98
18	1	0.9 ± 0.67

[a] Average environmental level shown in Table B-1 subtracted from the data.

[b] Estimated error at the 95% confidence level.

[c] LDL for plutonium-238 in pond sediment is 2.9 x 10^{-9} µCi/g.

[d] Below environmental level.

* Sampling locations shown on Figure 4-7.

Table B-16. Incremental Concentrations[a] of Plutonium-239,240 in River and Stream Sediments in 2000

Location*	Number of Samples	Plutonium-239,240 10^{-9} µCi/g Minimum	Maximum	Average[b,c]
2	4	d	2.29	0.37 ± 2.31
4	4	1.69	2.69	2.34 ± 1.04
5	4	0.39	4.69	2.29 ± 3.23
7	4	1.39	19.09	9.59 ± 13.85
8	4	d	0.49	d
Mound Ave Storm	4	0.49	5.99	3.52 ± 3.71

[a] Average environmental level shown in Table B-1 subtracted from the data.

[b] Error limits are estimates of the standard error of the estimated mean at the 95% confidence level.

[c] LDL for plutonium-239, 240 in river sediment is 2.5 x 10^{-9} µCi/g.

[d] Below environmental level.

* Sampling locations shown on Figure 4-7.

Table B-17. Incremental Concentrations[a] of Plutonium-239,240 in Pond Sediments in 2000

Location*	Number of Samples	Plutonium-239,240 Value[b,c] 10^{-9} µCi/g
11	1	0.2 ± 0.72
12	1	d
14	1	d
15	1	2.8 ± 0.93
17	1	d
18	1	d

[a] Average environmental level shown in Table B-1 subtracted from the data.

[b] Estimated error at the 95% confidence level.

[c] LDL for plutonium-239, 240 in pond sediment is 2.2 x 10^{-9} µCi/g.

[d] Below environmental level.

* Sampling locations shown on Figure 4-7.

Table B-18. Incremental Concentrations[a] of Thorium-228, Thorium-230, and Thorium-232 in River and Stream Sediments in 2000

Location*	Number of Samples	Thorium-228 10^{-9} µCi/g Minimum	Maximum	Average[b,c]
2	4	d	104.0	d
4	4	d	187.0	d
5	4	d	277.0	52.25± 452.57
7	4	d	292.0	136.0 ± 454.15
8	4	d	3.0	d
Mound Ave Storm	4	d	193.0	50.25 ± 424.54

Location*	Number of Samples	Thorium-230 10^{-9} µCi/g Minimum	Maximum	Average[b,c]
2	4	d	206.25	d
4	4	d	438.25	66.0 ± 756.04
5	4	d	547.25	76.0 ± 804.55
7	4	d	502.25	173.25 ± 800.07
8	4	d	d	d
Mound Ave Storm	4	d	d	d

Location*	Number of Samples	Thorium-232 10^{-9} µCi/g Minimum	Maximum	Average[b,c]
2	4	d	129.75	d
4	4	d	221.75	3.75 ± 464.13
5	4	d	224.75	57.75 ± 435.33
7	4	d	214.75	101.5 ± 432.28
8	4	d	d	d
Mound Ave Storm	4	40.75	96.75	69.75 ± 395.42

[a] Average environmental level shown in Table B-1 subtracted from the data.

[b] Error limits are estimates of the standard error of the estimated mean at the 95% confidence level.

[c] LDL for thorium-228 in river sediment is 48.1 x 10^{-9} µCi/g. The LDL for thorium-230 in river sediment is 12.4 x 10^{-9} µCi/g. The LDL for thorium-232 in river sediment is 15.1x 10^{-9} µCi/g.

[d] Below environmental level.

* Sampling locations shown on Figure 4-7.

Table B-19. Incremental Concentrations[a] of Thorium-228, Thorium-230, and Thorium-232 in Pond Sediments in 2000

Location*	Number of Samples	Thorium-228 Value[b,c] 10^{-9} µCi/g
11	1	496.0 ± 80.2
12	1	441.0 ± 121.9
14	1	67.0 ± 53.4
15	1	556.0 ± 82.6
17	1	2.0 ± 48.6
18	1	180.0 ± 58.5

Location*	Number Of Samples	Thorium-230 Value[a,b,c,f] 10^{-9} µCi/g
11	1	896.0 ± 129.4
12	1	820.0 ± 193.4
14	1	52.0 ± 83.5
15	1	751.0 ± 11.99
17	1	d
18	1	208.0 ± 88.9

Location*	Number Of Samples	Thorium-232 Value[a,b,c] 10^{-9} µCi/g
11	1	541.0 ± 85.3
12	1	618.0 ± 143.0
14	1	36.0 ± 54.7
15	1	442.0 ± 78.2
17	1	d
18	1	d

[a] Environmental level shown in Table B-1 subtracted from the data.

[b] Estimated error at the 95% confidence level.

[c] LDL for thorium-228 in pond sediment is 48.1 x 10^{-9}µCi/g. The LDL for thorium-230 in pond sediment is 12.0 x 10^{-9}µCi/g. The LDL for thorium-232 in pond sediment is 15.1 x 10^{-9}µCi/g.

[d] Below environmental level.

*Sampling locations shown in Figure 4-7.

Table B-20. Incremental Concentrations[a] of Tritium in Foodstuffs[b] in 2000

Location	Number of Samples	Tritium 10^{-6} µCi/g			
		Value[c]	Minimum	Maximum	Average[d,e]
Brookville	1	0.001 ± 0.03			
Carlisle	1	f			
Centerville	1	f			
Germantown	2		f	0.002	f
Miami Township	1	f			
Miamisburg	7		f	0.14	0.05 ± 0.07
Springboro	1	0.05 ± 0.03			
Troy	1	f			

[a] The environmental level shown in Table B-1 subtracted from the data.

[b] Tomato samples were analyzed.

[c] In cases where only one sample was collected, minimum, maximum, and average values do not apply.

[d] Error limits are estimated error at the 95% confidence level.

[e] The LDL for tritium in foodstuffs is 1.5 x 10^{-6} µCi/g..

[f] Below environmental level.

Table B-21. Concentrations[a] of Plutonium-238 in Foodstuffs[b] in 2000

Location	Number of Samples	Plutonium-238 10^{-9} µCi/g Value[c]	Minimum	Maximum	Average[d,e]
Brookville	1	0.04 ± 0.03			
Carlisle	1	f			
Centerville	1	f			
Germantown	2		f	0.07	0.02 ± 0.03
Miami Township	2		f	f	f
Miamisburg	3		f	0.07	f
Springboro	1	0.07 ± 0.03			

[a] Environmental level below background.

[b] Potatoes, beets, cabbage, and pepper samples were analyzed.

[c] In cases where only one sample was collected, minimum, maximum, and average values do not apply.

[d] Error limits are the estimated error at the 95% confidence level.

[e] The LDL for plutonium–238 in foodstuffs is 0.23 x 10^{-9} µCi/g.

[f] Below background.

Table B-22. Concentrations[a] of Plutonium-239,240 in Foodstuffs[b] in 2000

Location	Number of Samples	Plutonium-239,240 10^{-9} µCi/g Value[c]	Minimum	Maximum	Average[d,e]
Brookville	1	0.04 ± 0.03			
Carlisle	1	0.11 ± 0.04			
Centerville	1	0.08 ± 0.06			
Germantown	2		f	0.03	0.02 ± 0.04
Miami Township	2		f	f	f
Miamisburg	3		f	0.04	0.01 ± 0.06
Springboro	1	0.03 ± 0.02			

[a] Environmental level below background.

[b] Potatoes, cabbage, beets and pepper samples were analyzed.

[c] In cases where only one sample was collected, minimum, maximum, and average values do not apply.

[d] Error limits are the estimated error at the 95% confidence level.

[e] The LDL for plutonium–239,240 in foodstuffs is 0.17 x 10^{-9} µCi/g..

[f] Below background.